

S3.3.4 CANDLE FILTER OPERATION – CORRELATION BETWEEN LABORATORY SIMULATION AND PLANT OPERATION

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Candle filters are commonly employed in industry to separate particles from a process or wastewater stream. The geometry of candles enables high ratio of filtration area to filter vessel volume. It is a preferred automatic solid-liquid separation operation when hazardous materials or extreme processing conditions (e.g., temperature and pressure) are involved. Instead of the traditional laboratory testing via a flat filter disc, a simple laboratory candle filter system was setup to simulate plant operations including precoat, filtration, cake drying and cake discharge. The laboratory simulation results were compared with the full size plant candle filter operation and showed good agreement in performances. The performances were compared with precoat operation, filtrate clarity, filtration rate, cake built up on candles, cake discharge and cake dryness. The results indicate the laboratory candle filter provides good prediction and guidance for the plant candle filter operation and can be a good tool for its improvement.